

indicator in a manner well known to those skilled in the art.

When an aircraft on which the Pitot-static tube is mounted is flying at high altitudes where very low temperatures are prevalent, or when flying in inclement weather, ice tends to form or snow tends to pack at the opening 11 of the tube, thereby clogging said opening or completely closing it and rendering the tube inoperative. It is, therefore, desirable to prevent such ice formations, and for this purpose means are provided whereby the velocity tube 5 may be heated, thus preventing ice and snow from adhering to the tube. In the form shown, such means comprise a heating coil 24 which may be connected in an electrical circuit by means of a "single-wire-ground-return" system including a source of electric current (not shown) for heating said coil.

It is also desirable that the coil 24 be readily and easily inserted into and/or removed from the tube 5, thereby facilitating the replacement thereof. To this end a novel construction is employed embodying novel means whereby the coil is automatically interposed into the electrical circuit upon the placing thereof within the tube 5 and upon securing of the latter to the supporting member 6. This may be accomplished as shown in the detailed view in Fig. 4. In order to effect the automatic interposition of the coil into the circuit, said coil is provided at either end thereof with flanged collars 25 and 26, respectively, to which are adapted to be soldered ends 27 and 28 of the heating coil 24 and the collars are then placed over the ends of the coil to provide contact surfaces, one of which (collar 25) contacts with the interior surface of the tube 5, as shown in Fig. 1, and the other of which is adapted to contact with a resilient conducting ring 29 imbedded in an insulating ring 30, said ring 29 having soldered thereto end 31 of a suitable insulated cable 32. The cable may be connected to a source of current (not shown) such as a battery, for example, having one terminal thereof grounded. The return circuit of the coil is then provided through the ground formed by any suitable metal structure with which the tube is associated so that the collar 25, by virtue of its contact with the metal tube 5, constitutes the grounded side of the coil 24. The conductor 32 is led out of the tube through a recess 33 provided in the upper portion of the supporting section 6 and through a tube 34 similar to the tubes 20 and 21, extending transversely of and partly into said member 6.

The three tubes 20, 21 and 34 are held together by means of suitable clamps 35 and 36 and are bent in such a manner that the Pitot-static tube projects from its support (not shown) to which the three tubes may be clamped, as by means of brackets 37 and 38.

It will be apparent from the foregoing that when it is desired to remove the heating coil 24 for inspection or replacement thereof in case of its being burned out, all that is necessary to do is to unscrew the tube 5 from the supporting member 6 and remove the coil from said tube. As soon as the tube 5 is unscrewed from the section 6 the heating coil, by virtue of the disengagement of the collar 26 from the ring 29, is immediately disconnected from its electrical circuit without necessitating the disconnection of any wires. A new coil may then be placed within the tube 5 so that the collar 25 at one end thereof contacts with the inner wall of said

tube and the latter may then be secured to the supporting member 6 by means of the threads 9, whereupon the collar 26 at the other end of the coil presses firmly against the resilient ring 29 which is permanently connected to the insulated conductor 32.

There is thus provided a Pitot-static tube embodying a novel structure of a heating unit whereby the latter may be easily and quickly assembled and/or replaced without requiring connecting and disconnecting of wires from terminals and whereby the coil is automatically interposed in the electrical circuit which is adapted to energize it, by simply placing the coil within the nosepiece of the tube and securing said nosepiece to the tube.

Although only one embodiment of the invention has been illustrated and described, various changes and modifications in the form and relative arrangement of parts, which will now appear to those skilled in the art, may be made without departing from the scope of the invention. Reference is, therefore, to be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. In a Pitot-static tube unit having a metal tube section, one end of which is open to receive the impact of an air stream, a second tube section, the sides of which have apertures connecting it to the surrounding atmosphere, a member interposed between said tube sections for supporting the same, said member having two passages, one of which connects to the first tube section and the other of which connects to the second tube section, the combination of an electrical heating coil in said first tube section and having metal collars at its ends to which the opposite ends of the winding of the coil are electrically connected, thereby providing contact surfaces for said coil, one of said surfaces being in contact with the inner surface of said first tube section, and means including a lead wire adapted to contact with the other surface of the coil when said tube section is secured to the supporting member, said last-mentioned means being insulated from said tube section.

2. In a Pitot-static tube unit comprising a removable metal tube section having one end open to receive the impact of an air stream, a second tube section which is closed but which is provided with one or more apertures for establishing communication with the surrounding atmosphere, and means for connecting said tube sections to a differential pressure-responsive device, the combination of an electrical heating coil in said first tube section and having metal collars at its ends to which the opposite ends of the coil are electrically connected, thereby providing electrical contact surfaces for said coil, one of said surfaces being in contact with the inner surface of said first tube section when the latter is placed in position, and means including a lead wire adapted to contact with the other surface of the coil when the latter is held in the unit by the first tube section, said last-mentioned means being insulated from said tube section.

3. In a Pitot-static tube comprising a removable metal tube section having one end open to receive the impact of an air stream, a second tube section which is closed but which is provided with one or more apertures for establishing communication with the surrounding atmosphere, an annular member interposed between said tube sections and to which the latter are secured, and